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ABSTRACT

Urban stormwater runoff collects pollutants from many parts of a city and is an important consideration in water quality planning. Presented is an instructor's guide for a learning session covering various aspects of urban runoff including pollutant sources, management practices, and regulatory programs. Intended for citizen advisory groups, this guide along with the supplementary slide-tape program are part of the Working for Clean Water Project. (Author/WB)

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Working for Clean Water
An Information Program for Advisory Groups

Urban Stormwater Runoff

Instructor Guide

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION

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Urban Stormwater Runoff

Pollutants originating from diffuse sources over a wide area are classified as nonpoint sources of pollution. Urban stormwater runoff, because it collects pollutants from many parts of the city, is designated as a nonpoint source. Although the significance of stormwater runoff was not appreciated in the past, today nonpoint source pollutants dominate the water quality decisions in both urban and rural areas.

Nonpoint source pollutants are generated by various kinds of activities, including agriculture, silviculture, mining, septic systems, and urban-related activities such as industrial fallout, traffic, public refuse, and construction. Because of the broad scope, this unit of instruction is limited to the nature of nonpoint source pollution associated with urban stormwater runoff.

At the end of this session the participant should:

- Realize the seriousness of urban stormwater runoff pollution and relate it to the local situation
- Be able to identify the most common types of urban runoff pollutants and their sources
- Identify the Best Management Practices (BMPs) most suitable for local conditions
- Be able to identify management agencies and regulatory programs for implementation of a water quality management plan.

Required Materials

☐ Set of slides plus cassette tape for the audiovisual presentation, "Urban Stormwater Runoff"

☐ Slide projector, cassette tape player, and screen

☐ Set of flip charts plus easel and/or set of transparencies plus overhead projector for guided discussion

☐ Good, clear map of the local area

☐ Copy of handbook, "Urban Stormwater Runoff," for each participant.

Important Notes

1. The instructor should be familiar with the Nonpoint Sources of Pollution unit in this informational program.

2. Prior to this presentation, the instructor should become familiar with local examples of urban runoff pollution problems and the control methods being used. If necessary, talk to municipal or county officials. This will allow you to focus the discussion on pollution sources, controls (BMPs), and implementation more on the local area, giving it much more meaning for the participants. If possible, have present a local official, planner, or engineer conversant with local stormwater runoff problems.

3. Review the slide/tape program that goes with the Public Participation instructional unit for background on how an advisory group dealt with urban stormwater problems in Bellevue, Washington. The instructor may want to show the slide/tape program to the advisory group.

4. The instructor should be prepared to field questions concerning the Nationwide Urban Runoff Program (NURP). The objectives, current status, and future projections of the program should be known.

Suggested Activities

Introductory Comments	5 minutes
A/V presentation	15 minutes
Guided Discussion	20-30 minutes
Closing Remarks	5 minutes
TOTAL TIME	45-55 minutes

Introductory Comments (5 minutes)

1. Open the session with several dramatic facts about the seriousness of urban stormwater runoff to get everyone's interest. Facts such as:

- Every year cars deposit over 10 million tons of heavy metals onto the streets; these pollutants eventually find their way into our lakes and streams.

- The State of Illinois reported in 1975 that 45 percent of the pollution in the Chicago waterways was due to sewer overflows.

A/V Presentation (15 minutes)

1. Show the slide/tape program, "Urban Stormwater Runoff." This presentation covers the major sources of stormwater pollution, stresses the seriousness of the problem by comparing urban nonpoint source to municipal and industrial point sources, discusses some specific BMPs for use in controlling the problem, and closes with a review of the role of local agencies and citizen groups.

A/V script is in the Appendix. Be prepared to discuss slides 29 to 34. Technical terms, such as BOD, are used but not defined.

2. Ask the participants to consider the following key points during the A/V program:

   a. What are the major urban nonpoint source pollutants and their sources?

   b. Why is this problem becoming increasingly serious?

   c. Of the BMPs discussed, which ones could be considered for the local area?

   d. What state, county, and local agencies might assist in controlling urban runoff pollution?

Guided Discussion (20-30 minutes)

Encourage discussion. This is not to be a lecture!

1. Discuss the major sources of urban stormwater pollution.

Are there local conditions that make any of these sources more important than others?

2. Emphasize how greater urbanization creates more serious urban stormwater runoff problems.

Use slide 30 from slide/tape program.

3. Compare seriousness of urban runoff problems to other major polluters of urban water - industrial and municipal point sources.

This is a good opportunity to again distinguish between nonpoint sources and point sources of pollution. Stress that nonpoint sources, although less obvious, are just as serious and damaging.

4. Lead into BMPs by briefly comparing 2 methods of control:

Use slides 36-37 from slide/tape program.

very costly treatment methods vs. less costly preventative BMPs.

Refer to table in citizen handbook.

Discuss structural vs. nonstructural controls.

5. Since the nature and seriousness of urban stormwater pollution will vary across the country because of differences in climate, land features, and urban characteristics, controls (BMPs) that will be most useful to the local situation must be stressed. Therefore, given the local conditions:

a. What kinds of BMPs should be considered for this area? What will they accomplish? What problems will they create?

List these BMPs on flip chart or chalkboard; slides 49 and 58 from the slide/tape program could also be used.

b. Discuss those BMPs most suited for developed areas (city streets).

c. Which BMPs are most suited for developing areas (construction sites)?

6. What solutions to urban stormwater pollution have other communities used? Which BMPs have been selected and why?

Use handout, Pollution Removal Efficiencies for Various Control Strategies. A copy is in the Appendix.

David County (Utah) study showed that physical treatment processes most effective in removing pollutants, but also most expensive. Source controls deemed to be most cost-effective and are now being implemented.

Triangle J Council of Governments (North Carolina) reviewed 17 BMPs and decided to implement source and surface transport controls; collection and treatment were assessed to be too costly.

Charts 1 and 2 list these BMPs.

7. How are water quality management plans developed and implemented?

Rather than creating new agencies to deal with problems of urban stormwater runoff, the EPA stresses the role of existing local agencies and authorities in developing and implementing water quality management plans.

What might some of these existing agencies be:

At the municipal level, it could include planning commissions, and local public works and police departments (the latter to enforce anti-litter ordinances and parking regulations; the former to clean streets and sewers on a more regular basis).

List the agencies at the various levels of government on a transparency, flip chart, or chalkboard.

At the county level, it could include conservation districts, (taking on a larger role in nonpoint source aspects of erosion and sediment control), county governments and planning commissions.

At the regional level, it could include watershed or river basin authorities, and councils of governments.

At the state level, it could include environmental resource and soil and water quality departments, and highway departments.

What are the main policy instruments?

- **regulations and permits**
- **incentives**
- **education**
- **sanctions.**

8. It should be remembered that urban runoff often crosses municipal boundaries and in such cases either local agencies will have to coordinate their efforts or regional authorities should be the key implementing and managing agencies.

Try to use local example where problem exists across boundaries or where several municipalities have cooperated in trying to resolve an urban stormwater problem.

9. Finally, advisory groups may be asked to recommend various BMPs. What questions should be addressed while considering alternative solutions to urban stormwater runoff pollution?

Include some reference to cost-effectiveness – if it has not already come up.

- What is the estimated total cost and who pays?
- How effective are various BMPs?
- How does control plan get implemented?
  - legal authority
  - agency responsibility
- What are other impacts (especially environmental and social)?

Closing Remarks (5 minutes)

1. Answer any questions that come up.

2. Summarize the key points of the discussion.

Selected Resources

Amy, Gary, et al. Water Quality Management Planning for Urban Runoff. Report No. EPA-440/9-75-004. Washington, DC: U.S. Environmental Protection Agency, December 1974. 247 pp.

This manual describes procedures for quantifying nonpoint source problems in an area without the need of extensive data. It can be useful in assisting planners in the preliminary evaluation of cost-effective abatement and control practices. This publication is available from the EPA Library Services, Maildrop 35, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

The Hidden Dangers of Urban Stormwater. Washington, DC: Office of Water Program Operations, U.S. Environmental Protection Agency. 10 pp.

An easy-to-read introduction to the basic problems of urban stormwater runoff. It should be one of the first resources to be consulted. It is available from the EPA Library Services, Maildrop 35, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

Nonpoint Source Analysis Program of Triangle J Council of Governments. Report No. EPA 440/3077-024. Washington, DC: Office of Water Planning and Standards, U.S. Environmental Protection Agency, November 1978. 11 pp.

This is a summary of the first comprehensive study of nonpoint source pollution analysis conducted under the provisions of Section 208. It details the extent of a year-long water qaulity sampling and monitoring program and relates the nature of the pollutants to land use type. It is used in the citizen handbook as a case study. This report is available from the EPA Library Services, Maildrop 35, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

Setting the Course for Clean Water. Washington, DC: National Wildlife Federation, March 1978. 64 pp.

Subtitled "A Citizen's Guide to the Section 208 Water Quality Management Program," this handbook is excellent reading for those citizens who want to participate in the 208 program. Copies are available from the Education Division, National Wildlife Federation, 1412 16th Street, NW, Washington, DC 20036. Single copies are free; any additional copies are $2 each.

Stormwater Management Master Plan for Davis County, Utah. Report No. EPA-440/3-77-023. Washington, DC: Office of Water Planning and Standards, U.S. Environmental Protection Agency, May 1978. 11 pp.

This report details how a rapidly growing area of Utah documented their stormwater runoff problems, assessed the capacity of their stormwater facilities, identified their water quality problems, and developed a master plan to correct these problems. It is used in the citizen handbook as a case study. This publication is available from the EPA Library Services, Maildrop 35, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

Urban Stormwater Management and Technology: Update and Users' Guide. Report No. EPA-600/8-77-014. Cincinnati, OH: Municipal Environmental Research Lab, U.S. Environmental Protection Agency. September 1977. 313 pp.

This documents explains structural and nonstructural BMPs, gives descriptions of eleven case studies dealing mostly with large cities, and includes recommendations on urban stormwater runoff abatement. It is available from the Storm and Combined Sewer Section, Wastewater Research Division, Municipal Environmental Research Laboratory, Woodbridge Avenue, Building 10, Edison, NJ 08817.

Water Quality Management: Compendium I. Report No. EPA-440/3-77-026. Washington, DC: Water Planning Division, U.S. Environmental Protection Agency, December 1977. 117 pp.

This report presents 59 successful case studies of water quality management planning agencies which are implementing 208 programs. The activities and solutions of these agencies are documented. It is available from the EPA Library Services, Maildrop 35, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711.

Appendix

A. Charts for use by instructor in the Guided Discussion. Pages may be used to make transparencies or the contents can be copied onto flip charts.

1. Best Management Practices

2. Best Management Practices

B. Handouts for use by instructor in the Guided Discussion. Copies will need to be made for each participant.

1. Pollutant Removal Efficiencies for Various Control Strategies

C. Copy of the script for the slide/tape program, "Urban Stormwater Runoff."

Best Management Practices

Source control

Land use planning
Minimization of stripped areas
Buffer zones along streams and channels
Porous pavement
Street sweeping
Grade stabilization
Seeding and mulching
Terraces and diversion ditches
Lattice blocks
Cover crops
Contour plowing and tillage practices

Best Management Practices

Surface transport control

Street and channel design
Grass-lined waterways and outlets
Channel stabilization and stream bank protection

Collection

Detention basins (short term storage)

Treatment

Gravity settling
Filtration

Pollutant Removal Efficiencies for Various Control Strategies

Strategy	Pollutant Reduction			
	BOD	Suspended Solids	Total Coliform	Nutrient
Source Controls				
Erosion control	X	XX	X	X
Detention basins	X	X	X	X
Retention controls	XXXX	XXXX	XXXX	XXXX
Collection System Controls				
Sewer separation (w/discharge to receiving stream)	X	X	X	X
Sewer separation (w/discharge to treatment)	XX	XX	XXX	XX
Storage and Treatment				
Storage	X	XX	X	X
Physical treatment				
Sedimentation	XX	XXX	X	X
Screening	XX	XXXX	X	XX
Flotation	XXX	XXXX	XXXX	XXX
Filtration	XX	XXX	X	X
Disinfection	X	X	XXXX	X

Key: X - 0 to 25% reduction; XX - 25 to 50%; XXX - 50 to 75%; XXXX - 75 to 100%.

Adapted from Stormwater Management Master Plan for Davis County, Utah, Report No. EPA-440/3-77-023, May 1978.

A/V Script:
Urban Stormwater Runoff

Slide Description	Narrative
1. Focus	(Silence)
2. Words: Urban Stormwater Runoff	(Rainfall)
3. Pic: Large City (Aerial)	City stormwaters carry the unwelcome residue of urban life ... dirt, litter, and pollution.
4. Pic: Trash in gutter	While our cities are bathed in clean nourishing rain, the dirty bathwater ... or urban runoff, finds its way into lakes, rivers and estuaries ...
5. Pic: Trash in stream	Eventually yielding results like these.
6. Pic: People walking in rain	But, like all man-made problems, urban runoff has man-made solutions. This program will outline some of the problems of urban stormwater runoff and some of the control methods short of stopping rain itself.
7. Pic: People walking down street in rain Words: Meteorological, traffic related, man's debris, construction	We'll be looking at the sources of stormwater pollution.
8. Pic: People walking down street in rain Words: Runoff compared to point sources	We'll also compare the runoff problem with other sources.
9. Pic: Street sweeper Words: Street sweeping, trash pickup, catch basin cleaning	Specific methods of control within our cities will be outlined.
10. Pic: Partially constructed house Words: Detention basins, straw bales, diversion dikes, vegetative cover	And methods of prevention in developing areas will be discussed.

11.	Pic: Raindrops over blurred image	It all begins when one raindrop falls on a saturated urban surface. One droplet joins another, then another, until the water has enough momentum to flow over streets and sidewalks.
12.	Pic: Discharge pipe	Cleansing dirt and debris from the urban surface, the rainwater eventually discharges into receiving waters ... lakes, rivers and estuaries.
13.	Pic: Snow-covered street	In some areas of the country, stormwater also results from snowfall. De-icing agents such as salt, can add unwanted pollutants to runoff when applied in heavy quantities.
14.	Pic: Sunset through haze Words: Meteorological	The pollution picked up by stormwater flow comes from four major sources. The first is meteorological ... or related to air pollutants.
15.	Pic: Industrial smokestacks	Industrial particulates rise from city smokestacks only to fall again on urban surfaces.
16.	Pic: Person sweeping street	Thin layers of these pollutants blanket the city with invisible poison. Together with normal dustfall ... these meteorological sources find their way into stormwater with the first rain.
17.	Pic: Traffic-congested highway Words: Traffic	Traffic related pollutants are the second major source of urban stormwater pollution.
18.	Pic: Automobile exhaust	Exhaust emissions from thousands of motor vehicles deposit the by-products of fuel combustion up and down city streets.
19.	Pic: Oil spill, old car parts	Oil and gasoline spills, and invisible ever-present metals collect on pavements only to be washed away by tomorrow's rain.
20.	Pic: Trash pile beside building Words: Man's debris	People are the third source of stormwater pollution. Debris is contributed by city dwellers in enormous amounts ... through carelessness or lack of concern.
21.	Pic: Trash in gutter, manhole	When the rains come, litter resulting from human activity joins the stormwater and runs off to deny all people of safe, clean, recreational waterways.

22.	Pic: Building under construction Words: Construction	The last source of stormwater pollution is urban construction. Sediment accmulates from erosion at construction sites, a common happening in growing cities.
23.	Pic: Construction-disturbed earth	These sedimentary particles are easily carried off by rainfall.
24.	Pic: Composite of smokestacks, traffic, trash, construction	All four pollution sources mentioned ... meteorological, traffic related, urban litter and construction activity ... ultimately get a free ride downstream to our receiving waters.
25.	Pic: Houses in residential area	The sources of urban stormwater runoff would be a problem in a stable environment ... like an isolated countryside. But the factors of urbanization itself contribute an even greater opportunity for environmental degradation.
26.	Pic: Paved city street	Because the city rests on a vast stretch of pavement and concrete, stormwaters can race undeterred throughout the city.
27.	Pic: Eroded streambank	This concrete course discharges water into natural streambanks eroding waterways and producing turbid, swollen streams.
28.	Diagram: Urban runoff flowchart Words: Urban runoff, industrial point, municipal point	To see how serious the urban runoff problem is, we need to compare it with the two other major contributors of water pollution ... industrial's points and municipal point sources.
29.	Graph: Urban runoff compared with point source treatment levels	This chart compares the three sources on a national level. The chart assumes no growth. Keeping in mind that the Federal Water Pollution Control Act Amendments of 1972 require improved treatment at the point sources, we can predict a trade-off point in the early 1980's. By that time, industrial and municipal points will have curtailed their share of water pollution. But urban runoff, proceeding unchecked, will equal that from municipal point sources.
30.	Bar Graph: Comparison of urban runoff, combined sewers, and secondary treatment (present)	The magnitude of the urban runoff problem can be demonstrated in yet another way. Here urban runoff is compared with combined sewers, and secondary or advanced treatment in the amount of suspended solids released into our streams. The lion's share of pollutants comes from urban runoff.

31.	Bar Graph:	Comparison of urban runoff, combined sewers, and secondary treatment (future)	Projected to 1990. The difference between urban runoff and the two other sources is even greater.
32.	Bar Graph:	Comparison of urban runoff, combined sewers, and secondary treatment (estimated total annual loadings - 1973)	Biochemical, oxygen-demanding pollutants, or BOD, are contained in all three sources ... combined sewers, secondary treatment and urban runoff. This comparison shows that secondary treatment sources discharge the most BOD. Yet this chart does not take into account the intermittent nature of urban runoff. It occurs only when it rains. The other two sources are continuous.
33.	Bar Graph:	During a storm: Urban runoff compared to secondary treatment (BOD)	When urban runoff is compared with secondary treatment during a storm, the situation is reversed. Now urban runoff is the principal contributor of BOD.
34.	Bar Graph:	During a storm: Urban runoff compared to secondary treatment (SS)	And so in terms of BOD, as well as suspended solids, urban runoff shares go up dramatically during a storm. This results in shock loadings to our receiving waters.
			Up to now we've discussed the sources of urban stormwater pollution and measured the problem against other water pollutants. Before we consider solutions, we must put a price tag on treatment of already polluted waters.
36.	Table:	Primary estimates: treatment compared to source control	The cost of treatment as a method of control is estimated at 200 billion dollars. The expense is prohibitive by any budget.
37.	Table:	Estimates of cost and effectiveness of BMP techniques	But alternatives of a preventive nature as opposed to treatment measures appear to carry a much smaller price tag. Initial estimates indicate for 6 billion dollars instead of 200 billion dollars, less complicated, yet effective approaches to urban stormwater control can be explored.
38.	Pic:	People walking on rainy street	Let's lock now at methods of control. The idea is to redirect existing methods with improved water quality in mind.

39.	Pic: Old fashioned street sweeper Words: Street sweeper	Street sweeping is an ideal example of preventive control. In 1912, the first automotive street sweeper went into operation in the United States. Beyond cleaning the streets for aesthetic reasons, the street sweeper reduced the causes of illness. This simple machine, contrived to replace broom brigades, ultimately led to a healthier society.
40.	Pic: Modern street sweeper	Now we look at the street sweeper in terms of improved water quality. The object is to remove debris from the streets before rain washes it away. This means that street sweeping should be scheduled according to the frequency of rainfall.
41.	Pic: Vacuum street sweeper	Better suited for this purpose than mechanical street sweepers are vacuum sweepers. They remove sediment from porous pavement ... a job that old style brush sweepers cannot do.
42.	Pic: Vacuum street sweeper (rear view)	The investment in vacuum sweepers, along with their operation scheduled according to the frequency of rainfall, can substantially reduce the amount of sediment and debris that reaches our waters.
43.	Pic: Trash dump	Disposal of debris collected by automotive street sweepers must also be controlled. Here debris from sweeping is dumped in a pile. Left like this, it too will be carried away by stormwater.
44.	Pic: Sanitary landfill	The solution is to dispose of it in a sanitary landfill. Solid waste management and source control must work together. Especially here, the hidden groundwater resource quality must be protected.
45.	Pic: Trash pick-up truck	Another way to relieve urban streets of litter is improved trash pick-up. A redirection of existing trash collection schedules can have significant effects on water quality.
46.	Pic: Trash in gutter; manhole	The third traditional method of litter control that can effectively reduce stormwater pollution is catch basin cleaning.

47.	Pic: Catch basin (fill)	By cleaning basins on a regular schedule rather than on a demand basis, catch basins can efficiently remove pollutants before they are drained off by stormwaters.
48.	Pic: Vacuum-type catch basin cleaner	Vacuum-type catch basin cleaners are effective. Vacuum street sweepers with wandering hoses also do the job.
49.	Pic: Composite of vacuum-type catch basin cleaner, street sweeper, trash pick-up truck	As we have seen, three methods of control within densely populated areas can be redirected to relieve stormwater pollution ... street sweeping, improved trash collection and scheduled catch basin cleaning.
50.	Pic: House under construction	Let's look now to an area where we have the most opportunity for prevention and control of stormwater runoff ... in developing areas.
51.	Pic: Construction site, sediment runoff	Developing areas are characterized by construction activity. As we mentioned earlier, sediment from these sites contributes to pollution of stormwaters.
52.	Pic: Construction area	In developing areas it is possible to reduce sedimentary pollution by four significant methods.
53.	Pic: Dentention basin Words: Detention basin	The first way is through detention facilities. Water collects in a detention basin until the settling of particulates picked up by rain water occurs naturally. The rate of drainage can be controlled for natural runoff.
54.	Drawing: Profile of detention basin	This method is simple. Holed drilled in a riser pipe create a controlled release of accumulated water. It also allows time for sediment to collect in a detention basin ... rather than find its way to a stream. Once again, solid waste management can guarantee that collected sediment is removed.
55.	Pic: Straw bales along highway Words: Straw bales	Another way to control sediment is with the use of straw bales. The straw filters out particulates from runoff. This is a very effective control method, but straw bales also must be maintained.

56.	Drawing: Diversion dike	A third way to control construction sediment is the diversion dike. The dike channels stormwater to an area where it can be retarded.
57.	Pic: Grass Words: Vegetative cover	Vegetative cover has several benefits as a runoff control method. Besides holding down sediment and reducing erosion, vegetative cover picks up nutrients from the waters. And, of cource, it improves the appearance of the land which it covers.
58.	Pic: Composite of detention basin, straw bales along highway, grass, diversion dike drawing	These four traditional control methods ... detention facilities, straw bales, diversion dikes, and vegetative cover ... can easily be implemented in developing areas.
59.	Pic: Sandbags Words: Sandbags	To emphasize again the importance of maintenance of runoff control methods, consider these sandbags for use around construction sites. The sandbags prevent sediment in piles of soil from running off with stormwater. Sandbags are simple and effective.
60.	Pic: Leaking sandbags	But without proper maintenance, the sandbags will split adding to the problem instead of solving it. All control mehtods should be checked for maximum effectiveness.
61.	Pic: Persons sitting along desk	The Environmental Protection Agency encourages local governments and the public to work together in an effort to control urban runoff. Simple techniques, from street sweeping to sandbags, go a long way in checking the problem.
62.	Pic: Children beside river	Through the planning agencies set up by the Federal Water Pollution Control Act Amendments of 1972, your community can assess its own challenges.
63.	Pic: Man and woman studying drawing	Control methods and the solutions best suited to your locality can be devised by the planning agency in your urban area.

64.	Pic: Severe sediment runoff	Your community may be involved with other drainage control projects that can be tied to the urban runoff problem. Flood control ...
65.	Pic: Eroded streambank	Erosion control ...
66.	Pic: Water spraying on golfcourse	Non-crop irrigation ...
67.	Pic: Firefighters	And water for fire fighting can all be studied in conjunction with urban runoff.
68.	Pic: Composite of sediment runoff, eroded streambank, spraying water, firefighting	Controlling urban stormwaters can have added value when viewed with these other community needs.
69.	Pic: 6-way composite	Coordinated efforts of many agencies from state highway departments to local public works departments are needed for effective control. Because urban runoff is directly related to human activity, public awareness and cooperation are required.
70.	Pic: Children along riverbank	The rewards for such cooperation will be measured in cleaner water ...
71.	Pic: Sailboat	In improved recreation ...
72.	Pic: Pretty stream	In the preservation of natural beauty ..
73.	Pic: Child in rainsuit	And in the promise of a better tomorrow for those who will follow.
74.	Credit slide	

Working for Clean Water is a program designed to help advisory groups improve decision making in water quality planning. It aims at helping people focus on essential issues and questions, by providing trained instructors and materials suitable for persons with non-technical backgrounds. These materials include a citizen handbook on important principles and considerations about topics in water quality planning, an audiovisual presentation, and instructor guide for elaborating points, providing additional information, and engaging in problem-solving exercises.

This program consists of 18 informational units on various aspects of water quality planning:

- Role of Advisory Groups
- Public Participation
- Nonpoint Source Pollution: Agriculture, Forestry, and Mining
- Urban Stormwater Runoff
- Groundwater Contamination
- Facility Planning in the Construction Grants Program
- Municipal Wastewater Processes: Overview
- Municipal Wastewater Processes: Details
- Small Systems
- Innovative and Alternative Technologies
- Industrial Pretreatment
- Land Treatment
- Groundwater Contamination
- Multiple Use
- Environmental Assessment
- Cost-Effectiveness Analysis
- Wastewater Facilities Operation and Maintenance
- Financial Management

The units are not designed to make technical experts out of citizens and local officials. Each unit contains essential facts, key questions, advice on how to deal with the issues, and clearly-written technical backgrounds. In short, each unit provides the information that citizen advisors need to better fulfill their role.

This program is available through public participation coordinators at the regional offices of the United States Environmental Protection Agency.